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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/570,030

05/30/2006

Holger Stark

3926.242

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41288

7590

10/15/2008

PATENT CENTRAL LLC

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EXAMINER

BASKIN, JEREMY S

ART UNIT

PAPER NUMBER

4137

MAIL DATE

DELIVERY MODE

10/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/570,030	Applicant(s) STARK ET AL.	
	Examiner Jeremy S. Baskin	Art Unit 4137	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/17/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent German Application No. 10340320.5, filed on 08/29/2003.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. **Claims 11-19** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Regarding **Claim 11**, the limitation "the transition area" is stated in the fourth line of the claim. There is insufficient antecedent basis for this limitation in the claim.
6. Regarding **Claims 12-19**, the claims are dependent to one or more of the set of cancelled claims. The claims have been examined on the merits with each claim being dependent upon Claim 11.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 11, 13-16** rejected under 35 U.S.C. 102(e) as being anticipated by *Baur et al.* (U.S. Pat. No. 6,868,814).

The prior art discloses a multi-part valve possessing a valve shaft 1 and a valve plate 2 with an overlap area (1 in Figure 1). The valve plate is connected to the shaft (col. 2, ll. 57-60) with an intermediate layer (col. 3, ll. 27-32) disposed in between by way of a chemical bond (diffusion). This claim is identified as having product-by-process subject matter e.g. e.g. valve plate cast on to the valve shaft. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113 [R-1].

9. Regarding **Claims 13 and 14**, the overlap area can be designed to have undercuts or recesses (col. 3, ll. 5-10). Any form of groove or notch will increase the surface area of the overlap area, thus increasing the bond between the plate and stem (col. 3, ll. 20-25). Claim 14 is identified as having product-by-process subject matter e.g. mechanically or chemically roughened. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113 [R-1].

10. Regarding **Claims 15 and 16**, the valve plate is composed of titanium aluminide (col. 3, ll. 40-50) and the stem is made of steel (col. 3, ll. 34-36).

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11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 11-16, and 18** are rejected under 35 U.S.C. 102(b) as being anticipated by *Koike et al.* (U.S. Pat. No. 5,076,866).

13. The reference above discloses a composite engine poppet valve comprising a valve shaft 21 and valve plate 20 joined together with an overlap area formed by material 29. The intermediate layer 29 material-to-material bonds the shaft to the plate in the manner of a chemical bond (plastically worked, col. 1, ll. 52-63). This claim is identified as having product-by-process subject matter e.g. valve plate cast on to the valve shaft. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113 [R-1].

14. Regarding **Claim 12**, the intermediate layer 29 is in the form of a gradient layer in Figure 3C.

15. Regarding **Claims 13 and 14**, the valve shaft 21 exhibits recesses formed from extruded micro-pieces (col. 8, ll. 45-55) in Figure 4A. These micro-pieces conjoin to form recesses on the macro scale. Claim 14 is identified as having product-by-process subject matter e.g. mechanically or chemically roughened. The patentability of a product does not depend on its method of production. If the product in the product-by-process

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claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113 [R-1].

16. Regarding **Claim 15**, the valve plate is comprised of an aluminum-titanium compound (col. 1, ll. 55-60).

17. Regarding **Claim 16**, the reference discloses that valves have been formed of steel (col. 1, ll. 30-35).

18. Regarding **Claim 18**, a metal oxide, Al_2O_3 , is part of the composition of the intermediate layer (col. 8, ll. 45-50).

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. **Claims 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over *Koike et al.* (U.S. Pat. No. 5,076,866) in view of *Takano et al.* (U.S. Pat. No. 6,131,603).

21. The primary reference teaches all of the limitations as described in the parent claim, but fails to disclose an intermediate layer comprising an Ag, Ni, Ti, or Cu based alloy. *Takano et al.* discloses a poppet valve having undergone surface treatment. The various stages of surface treatment create layering affect of a titanium based alloy material (col. 1, ll. 59-61) at areas where the valve is induced to stress forces.

22. At the time of the invention, it would have been obvious to one of ordinary skill to incorporate the use of a titanium based alloy in a layered arrangement. The motivation

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to combine relies on the need to increase a structures wear resistance without increasing its rigidity.

23. **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over *Koike et al.* (U.S. Pat. No. 5,076,866) in view of *Esswein et. al.* (U.S. Pat. No. 7,401,586).

24. The primary reference discloses all of the limitations as described in the parent claim, but fails to disclose a layer with an open porosity between 1% and 75%.

25. *Esswein et al.* discloses valve seat rings possessing a spray on alloy layer. One of the layers is described as having a microstructure with an open porosity of less than 5% (col. 3, ll. 40-45).

26. At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the use of a material layer with an open porosity between 1% and 75% within an internal combustion engine valve component. The motivation to combine relies on the need to increase wear resistance on the structure.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. **Bonesteel et al. (U.S. Pat. No. 6,263,849)** discloses a similar valve structure to that of Claim 11.

b. **Ruhland et al. (U.S. Pat. No. 6,453,867)** discloses a similar valve structure to that of Claim 11.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy S. Baskin whose telephone number is (571)270-

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7421. The examiner can normally be reached on Monday through Friday, 7:30AM to 5:00PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dmitry Suhol can be reached on (571) 272-4430. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dmitry Suhol/
Supervisory Patent Examiner, Art
Unit 4137

/J. S. B./
Examiner, Art Unit 4137